
IN THE
Supreme Court of the United States

OCTOBER TERM 1976

No.

77-1794

AMPEREX ELECTRONIC CORP.,

Petitioner,

—v.—

THE NEW YORK RACING ASSOCIATION, INC., AUTOMATIC
TOTALISATORS (U.S.A.) LTD., AUTOMATIC TOTALISATORS
LTD., and PREMIER EQUIPMENT PROPRIETARY LTD.,

Respondents.

**PETITION FOR WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT**

S. C. YUTER

122 East 42nd Street
Suite 3601

New York, N. Y. 10017
212-986-1221

Counsel for Petitioner

Of Counsel

YUTER & ROSEN

DANIEL M. ROSEN

TABLE OF CONTENTS

	PAGE
I. References to Opinions Below	2
II. Jurisdiction	2
III. Questions Presented for Review	2
VI. Constitutional Provision and Statutes Which Case Involves	6
V. Statement of the Case	7
(A) Basis for Federal Jurisdiction in the District Court, the Patent and the Decisions Below	7
(B) The Patented Totalisator Invention	8
(C) The Accused Systems	10
(D) Denial of Equal Protection of the Patent Law for Computer Inventions	13
(E) The Prior Art Totalisator	14
(F) How the Totalisator Invention Produced a New and Different Function and Synergistic Effect—Automatic Daily Double Bet Process- ing	15
VI. Amplified Reasons for Allowing Writ	18
(1) Re Question (1) : Patentable Hardware Inven- tions Are Entitled to Protection From Copy- ing by Software Programmed Computers	18

	PAGE
(2) Re Question (2): Software Copying Is Infringement Because Software Programming Is Equivalent to Hardware Programming, Creates a New Machine in Which the Necessary Means Coexist and Are Permanent, and Since the Accused Systems Are Only Partially Programmed, the Means of Claims 20 and 24 Coexist Even Under Respondents' No-Coexist Theory	20
(3) Re Questions (3) and (4): This Is at Least a Close Case Because of the New and Different Function and Synergistic Effect—Automatic Daily Double Bet Processing—and Because the Elements of the Claimed Combination Are Not All Old	22
(4) Re Questions (5) (a), (b) and (c): § 103's "art to which said subject matter pertains," Which the Ordinary Person <i>Is In</i> Whose Level of Skill Is Resolved, Is the Totalisator Art and Not Data Processing Generally	23
(5) Re Questions (5) (d), (e) and (f): The Level of Ordinary Skill in the Totalisator Art Was Such That the Solution to the Daily Doubles Problem Was Not Obvious to Totalisator Experts—It Took Outsiders, the Patentees, to Solve the Problem With Their Totalisator Invention	28

	PAGE
(6) Re Questions (6) and (7): Whether or Not This Is a Close Case, the Ten Indicia of Non-obviousness Bring the Patentability Scales Crashing Down on the Patentability Side	30

TABLE OF AUTHORITIES

	Page
Cases:	
<i>Anderson's-Black Rock, Inc. v. Pavement Salvage Co., Inc.</i> , 396 U.S. 57 (1969)	17, 22, 23
<i>In re Chatfield</i> , 545 F.2d 152 (C.C.P.A. 1976), petition for cert. filed sub nom. <i>Dann v. Chatfield</i> , No. 76-1559, May 9, 1977	3, 14, 19
<i>Dann v. Johnston</i> , 425 U.S. 219 (1976)	20, 21, 25
<i>Decca Ltd. v. The United States</i> , 544 F.2d 1070 (Ct. Cl. 1976)	20, 21
<i>In re Fielder</i> , 471 F.2d 640 (C.C.P.A. 1973)	30
<i>Gottschalk v. Benson</i> , 409 U.S. 63 (1972)	3, 11, 12, 13, 14, 19
<i>Graham v. John Deere Co.</i> , 383 U.S. 1 (1966)	23, 24, 28, 31
<i>Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.</i> , 340 U.S. 147 (1950)	17, 22, 23
<i>Hotchkiss v. Greenwood</i> , 11 How. 248 (1851)	4, 24
<i>In re Noll</i> , 545 F.2d 141 (C.C.P.A. 1976), petition for cert. filed sub nom. <i>Dann v. Noll</i> , No. 76-1558, May 9, 1977	3, 14, 19

	Page
<i>Sakraida v. Ag Pro, Inc.</i> , 425 U.S. 273 (1976)	17, 22, 23, 31
Constitution:	
Art. 1, § 8	6, 19
Statutes:	
28 U.S.C. § 1254(1)	2, 19
28 U.S.C. § 1338(a)	7
35 U.S.C. § 100(b)	6, 13
35 U.S.C. § 101	6, 14
35 U.S.C. § 102	20, 24
35 U.S.C. § 103	1, 4, 6, 7, 8, 20, 23, 24, 30
35 U.S.C. § 271(a)	7, 14
Rule of the Supreme Court:	
Rule 19(1) and 19(1)(b)	14, 19, 20, 23, 28, 30, 31
Other:	
Federico, <i>Commentary on the New Patent Act</i> , 35 U.S.C.A. p. 1 (1954)	24
Richards, <i>Arithmetic Operations in Digital Com- puters</i> (1955)	23
Robbins, Note, <i>Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity</i> , 112 U. Pa. L. Rev. 1169 (1964)	30, 31

IN THE
Supreme Court of the United States

OCTOBER TERM 1976

No.

AMPEREX ELECTRONIC CORP.,

Petitioner,

—v.—

THE NEW YORK RACING ASSOCIATION, INC., AUTOMATIC
TOTALISATORS (U.S.A.) LTD., AUTOMATIC TOTALISATORS
LTD., and PREMIER EQUIPMENT PROPRIETARY LTD.,

Respondents.

**PETITION FOR WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT**

Petitioner, Amperex Electronic Corp., prays that a Writ of Certiorari be granted to review the portion of the judgment of the United States Court of Appeals for the Second Circuit entered on April 4, 1977 in Docket No. 76-7063 of the above entitled cause *sub nom.* Digitronics Corp., Now Amperex Electronic Corp. v. The New York Racing Association, Inc. *et al.*, affirming the decision of the district court holding invalid for obviousness, under 35 U.S.C. § 103, United States Patent No. 3,252,149, and also to review the district court's finding that certain systems of respondents do not infringe the patent, an issue not reached by the circuit court.

I. References to Opinions Below

The district court's voluminous Memorandum and Order with Annexes and Findings of Fact dated September 16, 1975, together with the Supplemental Memorandum and Order dated January 13, 1976, are printed at A20 of the separately presented Appendix. The main opinion is reported at 187 U.S.P.Q. 602, excluding Parts II, III and V and the Annexes.

The opinion of the Second Circuit Court of Appeals dated April 4, 1977 is printed at A1. It is reported at 553 F.2d 740.

II. Jurisdiction

The judgment of the United States Court of Appeals for the Second Circuit affirming a portion of a judgment of the United States District Court for the Eastern District of New York was entered on April 4, 1977. In an Order Extending Time to File Petition for Writ of Certiorari dated June 22, 1977, Associate Justice Thurgood Marshall extended the time for filing a petition to and including August 2, 1977. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

III. Questions Presented for Review

(1) Should computer technology inventions be denied effective patent protection by sanctioning noninfringing copying of computer *hardware* claims with software programmed general-purpose computers (this case) while denying patentability to software *method* claims which

could prevent such copying (*Benson* and perhaps *Chatfield*)¹?

(2) Can infringement of a claim covering a hardware invention be avoided simply by performing all, or even some, of the claimed functions by a software programmed general purpose computer?²

(3) In its zeal to challenge the persuasiveness of the Supreme Court's invention test (considering only subjective criteria of obviousness and not objective criteria of nonobviousness except in a close case, Question (7)), did the Second Circuit Court erroneously disregard a characteristic of patentable combination—a new and different function and a synergistic effect, automatic processing of daily double wagers, done onerously by hand in the prior totalisator art?

(4) Shouldn't the invention test for a combination of old elements be limited to claims in which each of the claimed elements is old rather than where the *components* of the claimed elements are old?

(5) In its zeal to challenge this Court's invention test, did the circuit court erroneously conclude that this was *not a close case* by

¹ *Gottschalk v. Benson*, 409 U.S. 63 (1972); *Dann v. Chatfield*, No. 76-1559, May 9, 1977.

² This question is the infringement corollary of the questions presented in *Chatfield* and *Dann v. Noll*, No. 76-1558, May 9, 1977, concerning the patentability of claims employing computer programs. If the petitions in *Chatfield*, *Noll* and this case are granted, it is respectfully suggested that they be consolidated for argument.

(a) confusing Section 103's "prior art", which the "ordinary mechanic acquainted with the business" (*Hotchkiss v. Greenwood*³) is charged with knowing, with the art of the "subject matter sought to be patented", which identifies the "pertinent art" which the ordinary mechanic is in whose level of skill is resolved to help determine obviousness or nonobviousness of the claimed subject matter;

(b) incorrectly stating that patentees argued that the prior art excluded data processing generally (A8);

(c) erroneously testing obviousness using the level of "ordinary" skill in an outside though related business (the business of the patentees, solid state electronic data processing) instead of the business of the "subject matter sought to be patented"—the totalisator art which is the subject matter of the Claims 20-22 totalisator invention and in which the problems arose which were solved by the totalisator invention;

(d) erroneously testing obviousness against the skill of the patentees (veteran inventors) and even though patentees were previously unacquainted with the totalisator business;

(e) erroneously holding that the district court was well within its discretion in barring the examination of a witness (ordinarily skilled in the totalisator art) on the level of ordinary skill in the totalisator art (A10, n.3); and

(f) not even considering the following *evidence* of the level of ordinary skill in the pertinent totalisator art—

³ 11 How. 248, 267 (1851).

1. a long-felt but unsolved need for automating the onerous manual processing of daily double bets,

2. availability and recognition of the necessary technology (solid state computer technology) for many years earlier,

3. failure of others to do it, and

4. discouragement by totalisator experts who said it couldn't be done, even using solid state computer technology?

(6) Since this is at least a close case (in view of the synergistic daily doubles result or the circuit court's erroneous level of ordinary skill), do not the preceding and following indicia of nonobviousness clearly tip the scales in favor of patentability:

(a) immediate recognition of the totalisator invention as a marvel, a breakthrough and the answer to a pari-mutuel manager's prayers;

(b) flattery of immediate infringement by respondents;

(c) recognition of even the first copy (NYRA's) as itself revolutionary;

(d) commercial success;

(e) obsolescence of the prior art totalisator;

(f) breaking of the Amtote totalisator monopoly because Amtote waited about five years (expecting the totalisator invention eventually to fail) before following its nearest competitor, respondent ATUSA, in copying the invention?

(7) In determining obviousness under Section 103, did the Second Circuit Court err (citing Judge Learned Hand's "persuasive advocacy") in criticizing the Supreme Court (A16) for putting a judge's subjective assessment of obviousness before a consideration of objective criteria of nonobviousness so that

Only in a close case, in which the application of the subjective criteria . . . does not produce a firm conclusion, can these objective or secondary considerations be used to "tip the scales in favor of patentability?"

IV. Constitutional Provision and Statutes Which Case Involves

U.S. Const. Art. I, § 8.

The Congress shall have power . . . To Promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries. . . .

35 U.S.C. § 101.

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. 100(b).

The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

35 U.S.C. § 103.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 271(a).

Except as otherwise provided in this title, whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent.

V. Statement of the Case

(A) *Basis for Federal Jurisdiction in the District Court, Parties, the Patent and the Decisions Below.*

Petitioner's predecessor, Digitronics Corporation, filed this patent infringement action pursuant to 28 U.S.C. § 1338 (a) against respondents on November 4, 1970 seeking an injunction (later waived) and damages. The New York Racing Association, Inc. ("NYRA") procured an accused system, the NYRA Totalisator, from Automatic Totalisators Ltd., an Australian concern. The system was later serviced and operated by Automatic Totalisators' subsidiaries, Automatic Totalisators (U.S.A.) Ltd. ("ATUSA") and Premier Equipment Proprietary Ltd. (the latter three respondents jointly termed "ATUSA"). ATUSA then made

its own totalisator system, the accused PDP-8 Totalisator, for use by smaller racetrack customers.

Petitioner, Amperex Electronic Corp., is the owner by mesne assignments of the patent in suit, No. 3,252,149 ("the patent") filed March 28, 1963 by five Digitronics' inventors and issued May 17, 1966 with 33 claims. (A260; Pl. Ex. 1) The patent relates to parimutuel systems "employed for servicing . . . wagers made by spectators at sporting events." (A260; col. 1, lines 14-22) They are commonly called "totalisators" because they total wagers in order to compute payoff prices and other betting data.

Noninfringed claims 1-19 define a data processing system invention and gave the patent its title "Data Processing System." Claims 20-33 define a separate totalisator system invention, of which only Claims 20-27 are charged with being infringed.

The circuit court affirmed the district court's judgment that Claims 20-27 were invalid for obviousness under 35 U.S.C. § 103. It did not reach the district court's decision that the claims, as machine means (hardware) claims, were not infringed by the accused systems, although the systems performed all of the claimed functions, because the accused systems comprise software programmed general-purpose computers which can only infringe process claims.

(B) The Patented Totalisator Invention.

The patented system, when used in place of the prior art in parimutuel wagering equipment for the placing of wagers at race tracks by those interested in the ancient and honorable art of improvement of the breed, resulted in the bene-

fits of increased accuracy, speed, compactness, flexibility, reliability and economy. (A2, A15)

Claim 20 defines the totalisator system, which consists of the combination of a plurality of conventional ticket issuing machines (TIMs), means for collecting from them the betting data on each entry and identifying those data to the original TIM, and means for aggregating the wagering data and sending an acknowledgment signal to the TIM so that it will stamp up and issue a ticket to the bettor with the wagering data on it. The system is composed of a set of commercially available, fairly standardized TIMs, an electronic linkage (containing novel TIM number signal generation means, Claim 20(B)) between the TIMs and an aggregator, a unit adder, and an acknowledgment signal amplifier between the unit adder and the TIM so that aggregating the wager effects an electromechanical release of the betting ticket. The purpose of the system is to aggregate wagers without losing track of the horse on which and the pool in which the wager was placed or the TIM at which the wager was placed. (A5, A15)

The system aggregates the wagers on each horse in each of the pools and the number of wagers at each TIM in a central memory. A computer draws the data from the central memory and uses those sums to compute the odds on each entry and to feed to an output display board the results of the odds changes every 70 seconds. (A4)

The aggregator of the horse wagers at the central memory is defined by Claim 21 as comprising a magnetic core memory. Claim 22 is also a magnetic core memory and it aggregates the number of wagers made at each TIM. (A3,

n. 2, A5, A148-150) Claim 20 and its dependent Claims 21 and 22 define the "totalisator invention."

Claim 23 relates to scratched horse circuitry and Claims 26 and 27 to erroneous data circuitry. For the sake of brevity these claims will not be discussed.

Claim 24 and its dependent Claim 25 relate to a high-speed scanning means for interrogating a plurality of relatively slow operating TIMs for collecting the betting data; Claim 24 provides for stepping from TIM to TIM until a wagering transaction is sensed in which event the wager is processed according to Claim 25. The special significance of Claim 24 is that it employs the heart of Claim 20, Claim 20(B)'s novel TIM number signal generation means—"generating means . . . for generating signals . . . representing the particular ticket issuing machine"—to control the scanning.

The TIM number generating means serves a multiple function. The most important is that it facilitates the use of the magnetic core memory (Claim 21) to produce *a new and different function, and a synergistic result*, not previously performed or accomplished by the prior art totalisators—the *automatic processing of daily double wagers* (picking the winner in each of two races run on the same day).

(C) *The Accused Systems.*

The accused systems are the NYRA Totalisator, built for NYRA by ATUSA, and ATUSA's own PDP-8 Totalisator.

The NYRA Tote was ordered by NYRA on July 30, 1964 and was first demonstrated on November 22, 1965.

The PDP-8 Tote followed the NYRA Tote.⁴

Each accused tote consists of: a plurality of TIMs; at least one newly-designed hardwired scanner to sequentially scan the TIMs in order to service, one at a time, those on which bets have been entered; two general-purpose electronic digital computers software programmed to do some of the tasks of the system, especially aggregating the bets made on each horse and on each TIM and cross-checking each other for accuracy; and a newly-designed hardwired tote control console.

In each accused system daily double bet processing is completely automatic. And in each accused system the crucial TIM number signal generation means is in the hardwired scanner and not in the software programmed computers.

On the issue of infringement the district judge made the following finding of fact:

48. The accused devices do not infringe any of Claims 20 through 27 for the reason that such claims do not extend to systems achieving the same functions as the patent's several combinations of machine means claims by using a general-purpose digital electronic data processor with programmed instructions. (A252)

The district judge's rationale was based on *Benson, supra*, and his entire statement is worth quoting:

⁴ The patentees' "First Tote", which incorporated the totalisator invention, was approved by the New York State Tax Commission on May 28, 1964 for daily double bet processing at Roosevelt Raceway. Regular bet processing was approved on May 11, 1965. The genesis of the patent was the work that the patentees undertook with and for Roosevelt Raceway in May 1959. Before then, patentees were not acquainted with the totalisator business. (A22-A23)

What *Benson* says does not dispel uncertainty, but it lends enough light to see to the conclusion that a combination of means claim comprising a machine system is not infringed by another machine system which does not as a permanent machine system include the same combination of means, and which performs the function to which the patented combination of means is addressed only when its general-purpose digital computer element is "instructed"—programmed—in the processing of the type of raw data that is to be fed to it. It is not the computer—the machine *qua* computer—that performs the function, but, rather, the machine function of the patent is attained only through "use" of the general-purpose computer. The general-purpose digital computer is itself a total and self-complete machine entity. Versatility in electronic data processing is its endowment, its reason for being, its stock in trade. When it is programmed to do what the system of plaintiff's product patent is capable of doing by machine means, it is not infringing the machine patent, for the patent is on a specific set of machine means, their making, use or vending; the patentability of the combinations of means for performing, *inter alia*, the tasks of a racetrack pari-mutuel system, if they had been patentable, would reside in the unobvious novelty of its combinations of machine means for doing the tasks. The programmed general-purpose digital computer does not so do the racetrack job; it ~~does~~ does the same tasks but not by the same or equivalent machine means. Rather, it performs the tasks—putting it most favorably to

plaintiff—by a new use of a known machine, and that is a process under 35 U.S.C. 100(b).

It is concluded that the accused devices do not infringe Claims 20-27. (A211-A212)

The circuit court, having agreed with the district judge that the patent is obvious, did not reach the infringement issue. (A2, n.1)⁵

(D) Denial of Equal Protection of the Patent Laws for Computer Inventions.

In the case of a computer hardware invention, the Patent Office will not grant a process claim in the form of a new use for a known machine because such a claim does not describe the disclosed invention of a *new* machine. And where the disclosed invention is based on a new and non-obvious program for a known general-purpose computer, *Benson* seems to deny the allowability of process claims, leaving only hardware claims to protect a program invention. Thus, if the present case stands as establishing the rule that a hardware claim cannot be infringed by a software programmed general-purpose computer performing all of the functions of the claimed means, then patent protection has effectively been denied to all computer technology inventions.

Surely, that is a denial of equal protection of the patent laws for computer technology inventions.⁶

⁵ While this court is thus deprived of the wisdom of the circuit court's thinking on the infringement issue, that wisdom will surely be supplied by *amicus curiae* briefs on both sides of the issue.

⁶ By dint of fate the whole issue is now before the Supreme Court. The Solicitor General, on behalf of the Patent and Trademark Office, has filed two petitions for certiorari asking this Court

Since the accused totes perform all of the functions of the machine means of the claims then they must have the *means* for performing those functions. Accordingly, the respondents infringe the patent because, without authority, they made and used the "patented invention, within the United States during the term of the patent." 35 U.S.C. § 271(a).

(E) The Prior Art Totalisator.

As of 1961, when the totalisator invention began to take shape, the state of the totalisator art was epitomized by the Model 7J totalisator, made by the American Totalisator Co. (Amtote), which was in use at the Aqueduct racetrack of defendant New York Racing Association, Inc. (NYRA) and at Roosevelt Raceway (L.I.N.Y.) (A11). (Roosevelt was the venture financier of the "First Tote",

to set aside a pair of rulings by the Court of Customs and Patent Appeals that sustained patent claims employing computer programs. According to the petitions, the CCPA is refusing to follow this Court's ruling in *Benson* and is creating "uncertainty and confusion in the administration of the patent laws" by permitting patent applicants to withdraw computer programming techniques from the public domain. *Dann v. Chatfield*, No. 76-1559, *Dann v. Noll*, No. 76-1558, May 9, 1977.

In the case of *In re Chatfield*, 545 F.2d 152 (CCPA 1976), Chief Judge Markey, writing for the majority (3-2), allowed *method* claims covering an invention disclosed as a software programmed general-purpose computer. In the case of *In re Noll*, 545 F.2d 141 (CCPA 1976), Judge Baldwin, writing for the majority (3-2), allowed *hardware* claims for an invention disclosed as a software programmed general-purpose computer. The dissent in each case cited *Benson* for the rule that computer program inventions are not patentable subject matter under 35 U.S.C. § 101.

The petitions for certiorari in *Chatfield*, *Noll* and this case should be granted to decide an important question of federal law which has not been, but should be, settled by this Court. Rule 19(1)(b). That is especially so because of the tremendous importance of computer technology innovation to the economy of the country and its leadership in the world.

designed and constructed by patentees, which embodied the totalisator invention.) The Model 7J's TIMs were of standardized construction and its aggregators and scanner were *electromechanical* in operation with the display boards electrically operable; an analog computer was used for calculating probable odds, and a solid state electronic digital price computer was responsive to the electromechanical aggregators to calculate payoffs. (A11-A12)

The principal deficiency of the Model 7J totalisator was that it could not aggregate daily double betting. (A23) Daily double bet processing was done manually by "hanging out the wash." It was one of the worst parts of the parimutuel job and it was a burden they wanted to get rid of. That deficiency resulted in the loss of about five minutes of selling, amounting to a daily loss of about ten to twenty thousand dollars in betting at Roosevelt. According to NYRA's experts, there was a tendency to discontinue doubles betting earlier than it might be stopped under an automated system and the degree of human intervention, under time pressure, involved an inordinate risk of error. The Roosevelt parimutuel manager was always tickled to death when the daily double was over.

To add daily double capacity to the Model 7J was uneconomic. It would have required three times as much equipment for use only once a day. It wasn't worth it.

(F) How the Totalisator Invention Produced a New and Different Function and Synergistic Effect—Automatic Daily Double Bet Processing.

The patent specification is written principally using daily double language. It states that "a general object of . . . the invention [is] to provide a more versatile system

... for processing sequential multientry transactions such as, but not limited to, daily doubles." (A260, col. 1, line 70 to col. 2, line 3)

Regular betting requires a few dozen memory registers for the win, place and show pool functions. Daily double would add about 150 more, or over four times as many. With the use of magnetic core memory for aggregating bet totals (Claim 21), the addition of the 150 registers for daily double involved an incremental cost of only a few hundred dollars. That should be compared with tripling the Amtote Model 7J cost to add the necessary registers. And NYRA was paying Amtote over a million dollars a year in 1964 to lease the Model 7J.

The novel TIM number signal generation means (Claim 20(B)) facilitated the use of the completely compatible magnetic core memory (Claim 21) (A148-A150) which resulted in the practical automation of daily double betting.⁷

⁷ The novel TIM number signal generation means serves three other functions. *First*, the TIM numbers are generated at electronic digital counter speed which permits each TIM to be electronically "scanned" at high speed to see if it has a bet to be processed. Since the address of each TIM is generated at the central location as a TIM number (A154-A155), each TIM is immediately and positively located. *Second*, TIM number signal generation permitted the use of the magnetic core memory to store the number of bets made at each TIM. The same TIM number is used as the address of its TIM memory register. (A149) The TIM memory (Claim 22) was completely new in the totalisator art. *Third*, since the same independently generated number is used for both the address of the TIM served and the address of its memory register in the TIM memory, they are completely coordinated and there is no room for mistake. There was no TIM number signal generation in the Model 7J and there was no compatible way to add it since the aggregation and scanning techniques were electromechanical not electronic.

In negating any synergistic results of the multi-function TIM number signal generation means (A15), both lower courts con-

The novel TIM number generation means is made up from old computer building blocks—but that is true of *all* computer systems.

Automatic daily double bet processing was a new and different function in the totalisator business and in the prior art generally. The epitome of the prior art totalisators, the Amtote Model 7J, was incapable of processing daily double bets.

The circuit court characterized patentees' contribution to the totalisator business as "simply the upgrading of a well-defined, existing data processing system by converting some components of the tote system from electromechanical to solid state electronic data processing." (A13) If that is the only difference, then automated daily double bet processing was not only new and different, it was a synergistic effect since the combining of "old" elements "resulted in an effect greater than the sum of the several effects taken separately."⁸

NYRA is the largest racetrack association in the country (Aqueduct, Belmont and Saratoga Raceways). So it had the largest need to automate the onerous, risky and costly manual daily doubles. The solid state computer technology

fused the Step Pulse Generator STP (A260, Fig. 3 top center), which provides the common step signal for ordering the system in real time, with the Scan Counter SKA (Fig. 2, right center) which contains the independent TIM number signal generation means Claim 20(B).

⁸ *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976); *Anderson's Black Rock v. Pavement Salvage Co.*, 396 U.S. 57, 61 (1969); also see *Great A&P Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152 (1950).

actually used by patentees in their First Tote was available by the mid-1950s. (A244) If patentees' totalisator invention were *clearly* obvious why did NYRA wait ten years *and* until the First Tote was approved by the New York State Tax Commission before ordering ATUSA to build one for NYRA? Or why didn't Amtote first build one to maintain its market dominance?⁹ Or why didn't ATUSA, Amtote's nearest competitor, first build one to increase its share of the market? The only credible answer is that others had failed to build a successful all-electronic tote and totalisator experts said it couldn't be done, even with solid state computer technology. So it couldn't be *clearly* obvious. Anyone can pick a winner after the race is run.

Patentees' totalisator invention promoted the progress of the useful art of parimutuel betting by automating and thus substantially increasing daily double betting. And if such betting is questioned as useful, it should be kept in mind that governments get their percentages right off the top. (A11)

VI. Amplified Reasons for Allowing Writ

(1) *Re Question (1): Patentable Hardware Inventions Are Entitled to Protection From Copying by Software Programmed Computers (See Secs. V.(C) & (D) Supra).*

This is a question of vital economic importance to a giant industry. Moreover, our country's security in a significant measure depends on our lead in computer

⁹ Amtote did not build its first one until about five years after NYRA because Amtote expected the First Tote to fail.

technology over the Soviet Union, so that computer technology innovation should not be discouraged. This is surely "an important question of federal law which has not been, but should be, settled by the court." Rule 19(1)(b).

This question is inextricably linked by *Benson* with the question of patentability of computer programs. *Benson* provided the rationale for the district court's decision that hardware claims are not infringed by a software programmed general-purpose computer performing all of the functions of the claimed means. Even though the Second Circuit Court did not reach the issue, this case still provides the Supreme Court with a unique opportunity simultaneously to decide both computer program patentability (*Chatfield & Noll, supra*) and computer program infringement. 28 U.S.A. §1254(1) provides that "[c]ases in the courts of appeals may be reviewed by . . . writ of certiorari granted . . . before . . . rendition of judgment. . . ."

But whether or not apparatus or process claims based on computer software are patentable subject matter, patentable hardware claims should be infringed by any system on which they both literally and substantively read, as here, irrespective of whether the copied functions result from software programming. Otherwise innumerable unexpired computer hardware patents will be rendered worthless by software copying, breaking the constitutional promise of "securing for limited Times to . . . inventors the exclusive Right to their . . . Discoveries" U.S. Const. Art. I, § 8.

(2) *Re Question (2): Software Copying Is Infringement Because Software Programming Is Equivalent to Hardware Programming, Creates a New Machine in Which the Necessary Means Coexist and Are Permanent, and Since the Accused Systems Are Only Partially Programmed, the Means of Claims 20 and 24 Coexist Even Under Respondents' No Coexist Theory (See Secs. V.(C) & (D) Supra).*

This is an important question of federal law for the same reasons as Question (1).

Moreover, this decision is in conflict with the decision of the U.S. Court of Claims in *Decca Ltd. v. The United States*, 544 F.2d 1070, 1079 (Ct. Cls. 1976), that a software programmed general-purpose computer when combined with other elements of the patented navigational system infringed the hardware claims of the patent. Rule 19(1)(b).

Respondents have not controverted the finding of the district court that all of the functions of the claimed means of Claims 20-27 are performed by each of the accused systems. Neither have respondents questioned the technological equivalence of hardware and software means to program a computer, or that a software programmed general-purpose computer is a *new* machine, contrary to the district court's idea that it is an old machine which can only perform new processes. That it is a new machine seems to be supported by this Court's subsequent decision in *Dann v. Johnston*, 425 U.S. 219 (1976) where claims to a software programmed machine system were held obvious under 35 U.S.C. § 103, which is not reached unless there is novelty under § 102; i.e., unless there is a new machine.

Respondents have argued that there is no infringement because the claimed means do not simultaneously exist since the programmed functions are performed sequentially. This argument was rejected by the district court. (A206-A210) Moreover, the accused systems, as a practical matter, perform all of their functions simultaneously because of their incredible speed. Tickets are issued without any delay. And the necessary means must coexist because the systems function without human intervention once a ticket issuing machine is operated. In such an automatic sequencing operation a capability of immediately determining what happens next is needed and that cannot be done unless the necessary structure coexists in time.

With respect to infringement of Claim 20 by both the NYRA and PDP-8 totes, it should be noted that Claim 20(A) is the hardwired TIMs and Claim 20(B) is in the hardwired scanner. Only 20(C) is in the programmed computer so that at the instant that 20(C) exists all of the claim exists simultaneously. And no means of scanner Claim 24 is even in the computer. Thus, even under respondents' theory, the means of Claims 20 and 24 coexist.

The district court's noninfringement conclusion seems to be based on its view that "a machine system is not infringed by another machine system which does not as a *permanent* machine system include the same combinations of means . . ." (A211, emphasis added). A software programmed general-purpose computer is more permanent than an unprogrammed and thus incomplete computer having no end use until it is programmed. And in *Johnston*, this Court did not question the "machine system" form of the claims or the permanence of the programmed computer; the same in *Decca, supra*.

And where in the patent law is there a requirement for a *permanent* infringement as a condition to liability?

(3) *Re Questions (3) and (4): This Is at Least a Close Case Because of the New and Different Function and Synergistic Effect—Automatic Daily Double Bet Processing—and Because the Elements of the Claimed Combination Are Not All Old (See Sec. V.(F) Supra).*

The circuit court opinion makes no mention of daily doubles except erroneously to attribute that crucial function to the prior art Amtote Model 7J Totalisator. (A11) Perhaps the circuit court disregarded that crucial function, and even erroneously attributed it to the prior art, in its zeal to challenge this Court's invention test for combination patents set out in *A&P*, *Black Rock* and *Sakraida*. They stand for the rule that for a patent on a combination of old elements to be valid, the combination must produce a new or different function or a synergistic effect. Since that is the result here, this is at least a close case in which the ten objective criteria of nonobviousness should tip the scales of patentability on the patentability side.

By disregarding automatic daily double bet processing, the circuit court erroneously concluded that "the function, means, and results of appellant's claims are fully anticipated by the prior art . . ." (A16) and "that the claims made here are clearly obvious, [so that] we need not examine secondary considerations." (A17)

Claim 20(B)'s TIM number signal generation means is new—that was never done before. But the Claim 20(B) means is itself made up of old computer building block components. As the circuit court noted "[t]he patent itself fre-

quently refers to R. K. Richards, *Arithmetic Operations in Digital Computers* (1955), which discloses many of the fundamentals of computer logic applicable in the field of data processing generally." (A3-A4) That is the basis for its conclusion that the "means . . . of appellants' claims are fully anticipated by the prior art." (A16)

In *A&P*, *Black Rock* and *Sakraida* each of the claimed elements of the claimed combination was old. So this is at least a close case because each of the claimed elements is not old. But whether the test for a combination of old elements is based on the claimed elements themselves or on the *components* of the claimed elements is an important question of federal law which has not been, but should be, settled by the Court. Rule 19(1)(b).

(4) *Re Questions (5)(a), (b) and (c): § 103's "art to which said subject matter pertains," Which the Ordinary Person Is In Whose Level of Skill Is Resolved, Is the Totalisator Art and Not Data Processing Generally.*

The exact meaning of "art" in § 103's "to a person having ordinary skill in the art to which said subject matter pertains" is an important question of federal law which has not been, but should be, settled by the Court. Rule 19(1)(b). Here it should make the difference between "clearly obvious" and a close case.

This Court, in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), set three basic factual inquiries as the background against which obviousness or nonobviousness of the subject matter is determined: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained;

and the level of ordinary skill in the *pertinent art* resolved." 383 U.S. at 18 (emphasis added).

According to the Patent Office expert on the legislative history of the 1952 Patent Act, P. J. Federico, "prior art" means "what was known before as described in section 102." 35 U.S.C.A., at p. 20.^{9a} Naturally, there is no "person of ordinary skill" in "what was known before." No one knows everything.

According to *Graham*, "pertinent art" is from a codification of *Hotchkiss*' "ordinary mechanic acquainted with the business" and means the same as in "beyond the skill of the calling." 383 U.S. at 5-19. It is a specific art a person can be skilled in. § 103 defines the "pertinent art" as the art of "said subject matter." "[S]aid subject matter" is "the subject matter sought to be patented." So "pertinent art" is the art of the claimed subject matter and it is limited to a specific business or calling.

While § 103's "prior art" means "what was known before as described in section 102," the hypothetical ordinarily-skilled person is charged with knowing the content of only the scope of the relevant prior art. That is much broader than the specific art which the hypothetical person is in whose level of skill is resolved in order to help determine obviousness. It is this difference which the circuit court confused and which led it erroneously to conclude that this is not a close case. That confusion is evident in the following statement (at A10):

Thus the scope of the prior art in this case, in which the hypothetical reasonable person must be ordinarily skilled, and hence which the inventors here could reasonably be expected to have consulted, encompasses

^{9a} Federico, *Commentary on the New Patent Act*, 35 U.S.C.A., p. 1 (1954).

data processing generally and is not restricted to the totalisator business.¹⁰

Thus the Second Circuit Court mistakenly equated the "scope of the prior art . . . which the inventors could reasonably be expected to have consulted"—i.e. the *relevant* prior art which the hypothetical person would consult because the inventors were charged with knowing it—with the pertinent art, the art of the claimed subject matter; i.e., *totalisators*.¹¹ Moreover, there is a well-known and long-established totalisator business (calling or art) and the problems solved by the Claims 20-22 totalisator invention arose in that business. So it is the level of skill of an ordinary person in the totalisator art, which had the onerous manual daily doubles problem, not data processing generally (which encompasses the totalisator and *other* arts), against which obviousness of the claimed *totalisator* subject matter should have been determined after first ascertaining the smallest differences over the prior *general data processing art*.¹²

¹⁰ In the associated footnote the circuit court stated that "the applicable art was far broader than the totalisator business."

¹¹ Each of claims 20-22 is a "system comprising . . . ticket issuing machines wherein each . . . comprises . . . switches each associated with a different entry in a race" plus aggregating means—i.e. a totalisator. The remaining claims 23-27 are similarly limited to totalisators.

¹² Data processing generally encompasses the *differently-skilled* arts of electromechanical data processing (IBM punched cards, for example) and electronic data processing (including solid state techniques). Electromechanical data processing, in turn, historically encompassed the totalisator art. In *Johnston* this Court apparently found the pertinent art to be the banking industry and that the hypothetical person in the banking industry was charged with an awareness of computer technology generally. 425 U.S. at 228.

Patentees *never* argued that the district court “erroneously considered the prior art in data processing generally, rather than limiting his consideration to the totalisator business.” (A8) Patentees agreed that the scope of the relevant prior art not only included data processing generally but the specific solid state computer technology employed by patentees in designing the First Tote. For not only was the 1961 ordinarily-skilled person in the totalisator art charged with knowing solid state computer technology, that person actually knew it. The epitome of the prior totalisator art (the Amtote Model 7J Totalisator) wedded its electromechanical bet aggregators to an add-on solid state digital price computer.

The circuit court thus compounded its mistake in confusing the relevant “prior art” of § 103 with its “pertinent art” by rejecting a “major argument” patentees never made, apparently in its zealous haste to conclude (erroneously) that this is not a close case in order to challenge this Court’s invention test.

In concluding that this is not a close case, the circuit court ascertained the differences over the closest prior totalisator art as follows (A13):

Appellant’s contribution to the totalisator business involved simply the upgrading of a well-defined, existing data processing system from electromechanical to solid state electronic data processing by converting some components of the tote system from electromechanical to solid state electronic data processing. Specifically, Digitronics’ totalisator, the First Tote, differed from prior totalisators in using electronic solid state aggregators for accumulating wagers and

total amounts, an electronic scanner for sequentially connecting the ticket issuing machines to the aggregators, digital solid state computing devices for calculating probable odds and payoffs, and an electronic solid state memory for recording the bets made on each TIM.

While these devices were new to totalisators, they were not new to data processing . . . Thus we have here the routine seeking of business by a qualified data processing “system” house, followed by the routine application of then-current state of the art data processing technology to the updating of an existing data processing system of known and defined functional characteristics

Here, however, the benefits that accrued from the replacement of electromechanical by solid state electronic means—increased accuracy, speed, compactness, flexibility, reliability, and economy—were, as Judge Dooling found, nothing more than the recognized advantages of electronic upgrading of a data processing system. (Emphasis added.)

In other words, the circuit court found the claimed inventions to be clearly obvious because of its view that patentees applied *their* routine skill in *their* solid state computer technology to attain predictable results by replacement of electromechanical totalisator means. The circuit court erred (1) in not applying the ordinary skill in the totalisator art, (2) in completely disregarding the new and different function and synergistic effect of that “replacement”—automatic daily doubles bet processing, and (3) in disregarding the *novel* TIM number signal generation means.

(5) Re Questions (5)(d), (e) and (f): The Level of Ordinary Skill in the Totalisator Art Was Such That the Solution to the Daily Doubles Problem Was Not Obvious to Totalisator Experts—It Took Outsiders, the Patentees, to Solve the Problem With Their Totalisator Invention.

How the level of § 103's "ordinary skill in the [pertinent] art" is to be factually resolved pursuant to *Graham* is an important question of federal law which has not been, but which should be, settled by this Court. Rule 19(1)(b).

Respondents' witness on the state of the totalisator art was a Mr. Fosse, who had been employed by Amtote for many years and who was responsible for the design of Amtote's Model 7J Totalisator. Since he had no patents he was deemed by patentees to be a person of ordinary skill in the totalisator art. But patentees were barred from examining him on the level of ordinary skill, and the circuit court held that the district court was well within its discretion in barring the requested examination.¹³ (A10, n.3)

So the only *factual* evidence in the record on the level of ordinary skill in the totalisator art is listed in Question (5)(f), *supra*.¹⁴ But this evidence was not considered

¹³ As a long time Amtote technical employee, Fosse was knowledgeable about the subject matter of a series of Amtote patents on totalisator inventions. Since patent applicants sign an oath that they believe the claimed subject matter is patentable, patentees expected to prove a level of *perceived inventive* skill in the totalisator art. That would provide a benchmark for the level of ordinary skill in the totalisator art.

¹⁴ The discouragement by totalisator experts who said it couldn't be done using solid state computer technology is especially persuasive. Listen to the following criticism (in July 1960) from a totalisator expert: "[Digitronics] are so far away from having an economical, workable totalizator that it is downright pathetic. They

by the lower courts. This evidence serves to prove that the level of ordinary skill in the totalisator art was such that the solution to their daily doubles problem was not obvious to their own totalisator experts. If this evidence is not conclusive, then it at least makes this a close case.

It is especially relevant that patentees were outsiders; they had no prior experience in the totalisator art.¹⁵ Surely the useful arts are not promoted by testing the obviousness of outsider inventions by the level of skill in their own art.¹⁶

Moreover, the patentees were veteran inventors who invented *routinely*. Surely the progress of useful arts is not promoted by measuring obviousness against the skill of

have violated every rule in the book that insures the continuity of performance of a successful totalizator installation . . . The solid state technique that they are incorporating in their electronic totalizator has been discussed and discarded by men of the highest standing in the electronic field, that is, so far as application to a totalizator is concerned . . . we established that to maintain speed, accuracy and economy . . . the cost for this central equipment would be prohibitive."

¹⁵ Some of the best inventions have been made by outsiders in solving problems that long defied solution. Thus the joke: "He didn't know it couldn't be done." That is related to a well-known phenomenon which deters progress in the useful arts—the NIH factor, Not Invented Here, by which corporate research departments downgrade inventions submitted by outsiders.

¹⁶ For example, assume that a method for early detection of cancer cells is developed by an astrophysicist using a technique for detecting and identifying remote stars from among the billions by measuring slight heat radiation differences. Since the expert cancer biophysicists are charged with knowing that technology, shouldn't obviousness be tested against the level of skill in the cancer detection art rather than in the outsider's astrophysics art?

the patentees; so this is at least a close case for that reason alone.¹⁷

(6) *Re Questions (6) and (7): Whether Or Not This Is a Close Case, the Ten Indicia of Nonobviousness Bring the Patentability Scales Crashing Down on the Patentability Side.*

The Second Circuit Court has rendered a decision that "[o]nly in a close case, in which application of the subjective criteria of nonobviousness in 35 U.S.C. § 103 does not produce a firm conclusion, can these objective or secondary considerations be used to 'tip the scales in favor of patentability.'" (A17) That decision is in conflict with the Court of Customs and Patent Appeals which has held that secondary considerations must *always* be considered. *In re Fielder*, 471 F.2d 640 (C.C.P.A. 1973). Since the C.C.P.A. strongly influences the quality and therefore the quantity of patents issued by the U.S. Patent and Trademark Office, this conflict is a special and important reason for granting review. Rule 19(1)(b).

In *Graham* this court stated (383 U.S. at 17):

Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., *might* be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries *may* have relevancy. See Note, Subtests of 'Nonobviousness', 112 U. Pa. L. Rev. 1169 (1964). (Emphasis added.)

¹⁷ Thomas A. Edison is reported to have received over 1000 patents. Whatever the merits of each of those patents, surely it is wrong to test their obviousness against Edison's skill.

Is *Sakraida* inconsistent with that approach?¹⁸ Or does *Sakraida* mean that this Court's words "might" and "may" require that these secondary considerations only be considered in a *subjectively-determined* close case? Or is there some other way to rationalize *Graham* and *Sakraida*? These questions are another special and important reason for granting review. Rule 19(1). It is important because the subjective approach increases uncertainty to patent owners and accused, and to inventors, as to what is, or may be, validly patented.¹⁹

Increased uncertainty seems to be a result which Congress and this Court sought to obviate through the 1952 Patent Act and *Graham*, in order to achieve the goals of stability, uniformity and definiteness.

But whether or not this is a close case, the ten indicia of nonobviousness listed in Questions (5)(f) and (6), present in this case, should bring the patentability scales crashing down on the side of patentability.

This case is truly a gold mine of § 103 questions which, together with the enormously important question of computer programming infringement, provide a unique op-

¹⁸ As intimated by the Second Circuit Court's "this view does not represent current law." (A16)

¹⁹ The unpredictability of the subjective approach "discourages poorer litigants from undertaking to assert valid patent rights thus denying them protection." See Note, "Subtests of 'Nonobviousness,'" 112 U. Pa. L. Rev. 1169, 1171 (1964). Moreover, the practice of considering or ignoring evidence is believed unparalleled in American jurisprudence.

portunity for the Court further to develop and clarify the Patent Laws.

Petitioner prays that review be granted.

Respectfully submitted,

S. C. YUTER

122 East 42nd Street

Suite 3601

New York, N. Y. 10017

212-986-1221

Counsel for Petitioner

Of Counsel

YUTER & ROSEN

DANIEL M. ROSEN